

## The relationship of postpartum depression with sociodemographic factors

Partner violence and postpartum depression

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### Abstract

**Aim:** In this study, we aimed to assess the incidence of postpartum depression, factors affecting the development of postpartum depression and to make a detailed analysis of intimate partner violence (IPV) during pregnancy and its effects on postpartum depression. **Material and Method:** This study enrolled 220 participants who were 2-6 months in puerperium period. The sociodemographic features of the participants and the levels of physical, economic, sexual, and psychological IPV exposed during pregnancy were rated using Edinburgh Postpartum Depression Scale (EPDS) that determines the risk of postpartum depression. A p-value less than 0.05 was considered statistically significant. **Results:** The mean age of 220 participants was  $30.84 \pm 6.032$  years. Thirty-five (15.9%) participants scored 13 or higher in the EPDS score; these 35 participants were considered to have postpartum depression (PPD). There was a significant difference between the EPDS scores by the educational levels of the partners ( $p < 0.05$ ). EPDS score was affected significantly by having a delivery under urgent conditions, developing any infantile complication during delivery, physical and psychological IPV had a significant effect on EPDS ( $p < 0.05$ ). Marriage age and educational level had a significant correlation with physical IPV ( $p < 0.05$ ). **Discussion:** PPD is a highly prevalent disorder that adversely affects the quality of life of a mother, infant, and all family members. Mothers in the postpartum period should be more closely followed and PPD must be questioned in family health centers.

### Keywords

Postpartum Depression; Violence in Pregnancy; Intimate Partner Violence; Edinburgh Postpartum Depression Scale

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## Introduction

Pregnancy and postpartum period are risky periods for psychological disorders to arise. In the postpartum period, intra-familial communication problems and various crisis periods may occur due to various causes including infant care [1]. Non-psychotic depression of the postpartum period is the most common complication after delivery [2]. It usually starts 15-20 days after delivery and in 80% of cases it starts within 1.5 months after delivery. It has a prevalence of 6% to 16% and an incidence of 10% to 15% [3]. The most common etiology of postpartum depression is a history of depression prior to gestation or anxiety. Additionally, problems associated with infant care, problems with partner and marriage, and low socioeconomic status also triggers postpartum depression [2]. The symptoms of postpartum depression are usually similar to those of major depression [4]. Postpartum depression is not only a problem for mother, but also for infant and other family members. Materno-fetal relation is severely impaired by postpartum depression. Maternal depression also impairs the emotional bond with the infant, which worsens mother's sense of guilt [5]. Severe postpartum depression may be easily overlooked, that is why its early diagnosis is of vital importance [6]. The Edinburgh Postpartum Depression Scale (EPDS) is a scale developed to rate depression risk following delivery [7].

Intimate partner violence (IPV) is an important public health problem that disproportionately affects women. IPV may be in many forms including physical violence, sexual violence, and psychological violence. About 40% of women in the United States are subjected to sexual violence and about 20% become victims of physical violence. IPV has a profound impact on a woman's physical and emotional wellbeing. IPV may lead to consequences as severe as mental disturbances, increased depression risk, anxiety, post-traumatic stress disorder, and suicide [8,9]. Many studies to date have focused on the risks of IPV in pregnancy [10,11].

This study aimed to assess the prevalence of postpartum depression and possible risk factors for its development. It also assessed in detail various types of IPV and determined their impact on EPDS.

## Material and Method

This study was approved by the clinical research local ethics committee (2018-319-13). It was designed and conducted as a cross-sectional analytic study. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants. The study was conducted at our Family Health Center in Eskişehir, in Turkey in an attempt to determine the prevalence of postpartum depression and the effects of possible risk factors and IPV episodes during pregnancy on its occurrence. It was performed by enrolling 220 patients who were willing to participate in the study. The study included mothers without any psychiatric disorder diagnosed in the prenatal period, who had given a live birth 2-6 months earlier. Two forms were prepared to record data during the study period. The first form was prepared by us to determine sociodemographic properties of enrolled mothers. The second form is the Edinburgh Postpartum Depression Scale (EPDS) form to rate the risk of postpartum depression. EPDS is a kind of self-rating scale. The lowest possible score attainable

from the scale is 0 and the highest 30. The participants with a total score of 13 or higher were considered as the risk group [7]. Mothers deemed to be at risk (those with an EPDS score of 13 or higher) were informed accordingly and referred to psychiatry clinics.

Age, the number of the current pregnancy, comorbidities, history of consanguineous marriage, marriage age, marriage duration, economic and educational level, occupational status, spouse's educational and occupational levels, single vs multiple fetuses, urgency of delivery, fetal complication in delivery, maternal complication in delivery, history of stillbirth, history of spontaneous abortus, use of assistive reproductive techniques, status of regular medical controls in pregnancy, smoking, alcohol, or drug use in pregnancy, comorbidities during pregnancy, exposure to physical, psychological, economic, and sexual IPV in pregnancy, antidepressant use in pregnancy, history of postpartum depression, history of infantile gas pains/colic, infant's feeding pattern (breastfeeding status), family history of psychiatric disease, and presence of domestic assistive personnel for infant care were questioned.

Data analysis was performed with SPSS vs 18 for Windows. The scores were expressed as mean  $\pm$  standard deviation (SD). Statistical analyses were performed using the Chi-Square test and the one-way Anova test. Risk analyses were performed. Reliability analysis was performed by calculating Cronbach's Alpha value. A p-value of  $p < 0.05$  was considered statistically significant.

## Results

This study included 220 mothers at 2-6 months postpartum period who had a mean age of  $30.84 \pm 6.032$  (min: 21, max: 34) years. The mean EPDS score was  $6.07 \pm 6.932$  (min: 0- max: 24). Thirty-five (15.9%) participants had an EPDS score of 13 or higher. The reliability of the study was performed by calculating the Cronbach's Alpha value, which was found 0.938 ( $> 0.7$ ) indicating the study was reliable. The current pregnancy was the first in 90 (40.9%) patients; second in 65 (29.5%) patients; third in 30 (13.6%); fourth in 20 (9.1%); fifth in 6 (2.8%); sixth in 5 (2.3%); and eighth in 4 (1.8%). Furthermore, 210 (95.5%) participants had a single fetus and 10 (4.5%) had multiple fetuses in their last pregnancy. Multiple fetuses and increased number of pregnancies caused a significant increase in the total EPDS score ( $p = 0.038$ ,  $p < 0.05$ ), ( $p = 0.000$ ,  $p < 0.05$ ).

Participants' economic level was categorized as low, moderate, and high. Fifteen (6.8%) patients had a low economic level; 200 (90.9%) patients had moderate economic level; and 5 (5%) patients had a high economic level. All (100%) 35 patients who had an EPDS score of 13 or higher had a moderate-income level. No significant difference could be found between EPDS level by economic status ( $p = 0.072$ ,  $p > 0.05$ ) (Table 1). Sixty (27.3%) patients were primary school graduates; 80 (36.4%) were high school graduates; and 80 (36.4%) were college graduates. No significant difference existed between EPDS levels by educational level ( $p = 0.286$ ,  $p > 0.05$ ) (Table 1).

Fifty (22.7%) spouses were primary school graduates; 95 (43.2%) high school graduates; and 75 (34.1%) college graduates. A significant difference existed between EPDS levels by spouse's educational level ( $p = 0.000$ ,  $p < 0.05$ ) (Table 1). The mothers with primary school graduate spouses had significantly different EPDS compared with mothers with high school graduate spouses, ( $p = 0.001$ ,  $p < 0.05$ ). The mothers with primary school graduate spouses had no significantly different

Table 1. The economic status of the participants, educational level, Partners' s educational level, baby's diet, age of marriage, length of marriage and the relationship with the Edinburgh Postpartum Depression Score (EPDS) in statistical terms (p-value)

		N	%	P*
The economic status	Low	15	6,8	0.072
	Middle	200	90,9	
	High	5	2,3	
	Total	220	100,0	
Educational level	Primary education	60	27,3	0.286
	High school	80	36,4	
	University	80	36,4	
	Total	220	100,0	
Partners' s educational level	Primary education	50	22,7	0.000
	High school	95	43,2	
	University	75	34,1	
	Total	220	100,0	
Baby's diet	Just breast milk	160	72,7	0.056
	Just formula	15	6,8	
	Breast milk and formula	45	20,5	
	Total	220	100,0	
Age of marriage	20 years and under	55	25,0	0.402
	21-30 years	150	68,2	
	31 years and older	15	6,8	
	Total	220	100,0	
Length of marriage	1-2 years	50	22,7	0.559
	2-5 years	80	36,4	
	More than 5 years	90	40,9	
	Total	220	100,0	

EPDS compared with mothers with college graduate spouses ( $p=0.103$ ,  $p>0.05$ ). The mothers with high school graduate spouses had significantly different EPDS compared with mothers with college graduate spouses ( $p=0.018$ ,  $p<0.05$ ).

Fifty-five (25%) participants married at an age of 20 or younger; 150 (68.2%) 21-30 years; and 15(6.8%) 31 years or older. Among 35 patients with an EPDS score of 13 or higher, nine (25.7%) married below the age of 20 years; 24 (68.6%) 21-30 years of age; and 2 (5.7%) 31 years or older. There was no correlation between marriage age and EPDS score ( $p=0.402$ ,  $p>0.05$ ). Duration of current marriage was 1-2 years in 50 (22.7%) patients; 2-5 years in 80 (36.4%) patients; and more than 5 years in 9 (40.9%) patients. No significant correlation was found between marriage duration and EPDS score ( $p=0.559$ ,  $p>0.05$ ) (Table 1).

An assessment of the feeding pattern of the patients revealed that 160 (72.7%) patients fed their infants exclusively with breast milk; 15 (6.8%) exclusively with formula; and 45 (20.5%) with a combination of breast milk and formula. No significant correlation was found between feeding pattern and EPDS score ( $p=0.056$ ,  $p>0.05$ ) (Table 1).

Ten (4.5%) patients had comorbidity whereas 210 (95.5%) patients had no comorbidity. No significant difference was observed in the EPDS score by comorbidity status ( $p=0.063$ ,  $p>0.05$ ) (Table 2).

The prevalence of consanguineous marriage was 2.3% ( $n=5$ ). No significant difference was observed in the EPDS score by the presence of consanguineous marriage ( $p=0.211$ ,  $p>0.05$ ) (Table 2). The rate of occupation among the participants was 36.4% ( $n=80$ ). No significant difference was observed in the EPDS

Table 2. The sociodemographic characteristics of the participants and pregnancies characteristics and their relation with Edinburgh Postpartum Depression Score (EPDS) (p-value)

	N		P*
	Yes	No	
Comorbidity	10 (%4,5)	210 (%95,5)	0.063
Consanguineous marriage	5 (%2.3)	215 (%97.7)	0.211
Working status	80 (%36.4)	140 (%63.6)	0.160
Partner's working status	215 (%97.7)	5 (%2.3)	0.077
Emergency childbirth	30 (%13.6)	190 (%86.4)	0.000
Complications in the baby during childbirth	15 (%6.8)	205 (%93.2)	0.000
Stillbirth history	7 (%3.2)	213 (%96.8)	0.340
Spontaneous miscarriage	45 (%20.5)	175 (%79.5)	0.624
Use of reproductive treatment	16 (%7.3)	204 (%92.7)	0.232
Regular check during pregnancy	210 (%95.5)	10 (%4.5)	0.142
Smoking	40 (%18.2)	180 (%81.8)	0.000
Health problems during pregnancy	26 (%11.8)	194 (%88.2)	0.600
Use of antidepressant drugs during pregnancy	7 (%3.2)	213 (%96.8)	0.076
History of depression diagnosed in previous pregnancy	5 (%2.3)	215 (%97.7)	0.053
Gas and colic in babies	94 (%42.7)	126 (%57.3)	0.537
Babysitter	134 (%60.9)	86 (%39.1)	0.075

score by the existence of consanguineous marriage ( $p=0.160$ ,  $p>0.05$ ) (Table 2). The percentage of spouses having any occupation was 97.7 ( $n=215$ ). No significant difference was observed in the EPDS scores by spouse's occupational status ( $p=0.077$ ,  $p>0.05$ ) (Table 2). Thirty (13.6%) patients delivered under urgent conditions. There were significant differences in the EPDS scores by urgency of delivery ( $p=0.000$ ,  $p<0.05$ ), (OR: 1.067, 95% (0.378, 3.007)) (Table 2). Mothers having urgent delivery had a higher EPDS score. Fifteen (6.8%) patients had experienced an infant complication. There was a significant difference between the EPDS scores by delivery complications ( $p=0.000$ ,  $p<0.05$ ) (OR: 1.352, 95% (0.361, 5.060)) (Table 2). There were 7 (3.2%) patients with a history of stillbirth (OR: 1.028, 95% (1.003, 1.053)) and 45 (20.5%) patients with spontaneous abortion (OR: 1.185, 95% (0.498, 2.821)). No significant difference was found between EPDS scores by a history of stillbirths and spontaneous abortions ( $p=0.340$ ,  $p>0.05$ ), ( $p=0.624$ ,  $p>0.05$ ) (Table 2).

There were 16 (7.3%) participants who had been fertilized with assisted reproduction techniques (OR: 0.802, 95% (0.173, 3.720)), 26 (11.8%) participants who had health problems in pregnancy (OR: 1.008, 95% (0.324, 3.138)), 94 (42.7%) participants who had gas-colic pain in pregnancy (OR: 0.742, 95% (0.352, 1.563)), and 134 (60.9%) participants who had assistance for infant care (OR: 1.249, 95% (0.586, 2.665)). No significant EPDS differences were seen with fertilization with assisted reproduction techniques, presence of health problems in pregnancy, presence of gas-colic pain in pregnancy, and having assistance for infant care ( $p=0.232$ ,  $p>0.05$ ), ( $p=0.600$ ,  $p>0.05$ ), ( $p=0.537$ ,  $p>0.05$ ), ( $p=0.075$ ,  $p>0.05$ ) (Table 2).

The rate of attending regular controls in pregnancy was 95.5% ( $n=210$ ); the rate of antidepressant use in pregnancy was 3.2% ( $n=7$ ); and the rate of having a history of documented depression in the previous pregnancy was 2.3% ( $n=5$ ). No significant differences were observed between EPDS scores, attending regular controls during pregnancy (OR: 0.746, 95% (0.152, 3.670)), antidepressant use (OR: 1.331, 95% (0.144, 12.275))

and the history of depression in the previous pregnancy (OR: 1.341, 95% (0.154, 12.321)),(p=0.142, p>0.05), (p=0.076, p>0.05), (p=0.053, p>0.05) (Table 2).

Furthermore, smoking during pregnancy was found at 18.2% (n=40). There were significant differences between EPDS scores by smoking by pregnancy (p=0.000, p<0.05) (Table 2).

Our study also evaluated IPV types subjected during pregnancy. IPV during pregnancy was categorized into four groups as follows: physical, psychological, economic and sexual. Of mothers participating in the study, 6.4% (n=14) stated that they had been subjected to physical IPV at least once. Twenty-six (11.8%) participants had been subjected to psychological IPV, 15 (6.8%) economic IPV, and 2 (0.9%) sexual IPV at least once during pregnancy. Statistically, there was a significant effect of physical (OR: 1.784, 95% (0.181, 17.666)) and psychological (OR: 0.407, 95% (0.092, 1.805)) IPV on EPDS (p=0.000, p<0.05), (p=0.021, p<0.05). However, no significance existed between economic (OR: 0.802, 95% (0.173, 3.720)) and sexual (OR: 1.011, 95% (0.996, 1.026)) IPV and EPDS (p=0.064, p>0.05), (p=0.056, p>0.05) (Table 3).

The relationship of psychological, economic, sexual, and physical velocity with marriage age, marriage duration, economic status, own educational level, partner's educational level, and smoking were shown in Table 4 and 5. There was a significant relationship between marriage age and educational level and physical IPV (p=0.014, p<0.05), (p=0.038, p<0.05) (Table 5).

**Discussion**

This study assessed the effects of physical, sexual, economic, and psychological IPV against women and sociodemographic properties on postpartum depression in Turkey. Our study was a prospective cross-sectional study. Studies in the published literature on IPV typically involve patients aged 15-50 years who are in the first six months of puerperium [12,13]. We enrolled 220 participants at postpartum 2-6th months. The age range was 21-34 years. The incidence of postpartum depression varies greatly, at 35.2%, 13.6%, and 43.7%, respectively [12,14,15]. PPD prevalence has been shown to vary between 3.5% and 63.3% in Asian countries [16]. However, there seems to be a consistency between numbers of studies performed in various developing countries. PPD prevalence was reported 38.3% in Pakistan, 33.2% in Turkey, 33% in Vietnam, 33% in Zimbabwe, and 27.9% in Brazil [12]. In central and eastern provinces of Turkey, PPD prevalence is reported as 27-28%. In a study from the capital city of Turkey, Ankara, the prevalence was found as 15% [6]. We report a PPD prevalence of 15.9%, which, although similar to what has been reported in other domestic studies, is much lower than prevalences reported from foreign countries. Advanced maternal age, history of stillbirth, difficulties of infant care, being deprived of any assistant for infant care, and lack social support are all important factors for the development of postpartum depression [17]. In a domestic study, maternal age reportedly exerted no effect on the PPD prevalence. Furthermore, studies from the Netherlands and Nigeria corroborated this finding [6]. In contrast, another study from Turkey reported that maternal age had a significant effect on PPD prevalence [18]. Our study, on the other hand, showed that although marriage age and duration did not affect PPD prevalence, advanced maternal age did.

Although several studies have refuted that socioeconomic status does not influence the incidence of PPD, others have indicated an inverse increase in PPD prevalence to income level

[18-20]. Our study failed to demonstrate any relationship between income level and PPD. Studies assessing PPD rate by maternal occupational status, however, provided controversial information. Some studies have concluded significant results, but some others have refuted such an effect [21,22]. Our study, on the other hand, demonstrated no relationship between

Table 3. Intimate partner violence during pregnancy and its association to Edinburgh Postpartum Depression Score (EPDS) (p- value )

Intimate Partner Violence	Yes	No	P*
Physical violence during pregnancy	14 (%6.4)	206 (%93.6)	0.000
Psychological violence during pregnancy	26 (%11.8)	194 (%88.2)	0.021
Economic violence during pregnancy	15 (%6.8)	205 (%93.2)	0.064
Sexual violence during pregnancy	2 (%0.9)	218 (%99.1)	0.056

Table 4. The characteristics of the participants' age of marriage, length of marriage, the economic status, educational level, partner's educational level and smoking and their relation with psychological and economic intimate violence during pregnancy (p- value)

		Psychological violence		P	Economic violence		P
		Yes	No		Yes	No	
Age of marriage	20 years and under	8 14,5%	47 85,5%	0.668	5 9,1%	50 90,9%	0.461
	21-30 years	17 11,3%	133 88,7%		10 6,7%	140 93,3%	
	31 years and older	1 6,7%	14 93,3%		0 0%	15 100%	
Length of marriage	1-2 years	2 4%	48 96%	0.148	2 4%	48 96%	0.345
	2-5 years	11 13,8%	69 86,3%		8 10%	72 90%	
	More than 5 years	13 14,4%	77 85,6%		5 5,6%	85 94,4%	
The economic status	Low	1 6,7%	14 93,3%	0.565	0 0%	15 100%	0.447
	Middle	25 12,5%	175 87,5%		15 7,5%	185 92,5%	
	High	0 0%	5 100%		0 0%	5 100%	
Educational level	Primary education	9 15%	51 85%	0.650	7 11,7%	53 88,3%	0.179
	High school	8 10%	72 90%		5 6,3%	75 93,8%	
	University	9 11,3%	71 88,8%		3 3,8%	77 96,3%	
Partner's educational level	Primary education	6 12%	44 88%	0.853	6 12%	44 88%	0.213
	High school	10 10,5%	85 89,5%		6 6,3%	89 93,7%	
	University	10 13,3%	65 86,7%		3 4%	72 96%	
Smoking	Yes	3 7,5%	37 92,5%	0.350	1 2,5%	39 97,5%	0.231
	No	23 12,8%	157 87,2%		14 7,8%	166 92,2%	



Table 5. The characteristics of the participants' age of marriage, length of marriage, the economic status, educational level, partner's educational level and smoking and their relation with physical and sexual intimate violence during pregnancy (p-value).

		Sexual violence		p	Physical violence		p
		Yes	No		Yes	No	
Age of marriage	20 years and under	1	54	0.691	8	47	0.014
		1,8%	98,2%		14,5%	85,5%	
	21-30 years	1	149		6	144	
		0,7%	99,3%	4,0%	96,0%		
	31 years and older	0	15	0	15		
		0%	100%	0%	100%		
Length of marriage	1-2 years	0	50	0.171	2	48	0.247
		0%	100%		4,0%	96%	
	2-5 years	2	78		8	72	
		2,5%	97,5%	10%	90%		
	More than 5 years	0	90	4	86		
		0%	100%	4,4%	95,6%		
The economic status	Low	1	14	0.051	0	15	0.474
		6,7%	93,3%		0%	100%	
	Middle	1	199		14	186	
		0,5%	99,5%	7,0%	93,0%		
	High	0	5	0	5		
		0%	100%	0%	100%		
Education level	Primary education	1	59	0.544	7	53	0.038
		1,7%	98,3%		11,7%	88,3%	
	High school	1	79		6	74	
		1,3%	98,8%	7,5%	92,5%		
	University	0	80	1	79		
		0%	100%	1,3%	98,8%		
Partner's educational level	Primary education	1	49	0.431	6	44	0.168
		2,0%	98%		12,0%	88%	
	High school	0	95		5	90	
		0%	100,0%	5,3%	94,7%		
	University	1	74	3	72		
		1,3%	98,7%	4,0%	96,0%		
Smoking	Yes	0	40	0.503	4	36	0.298
		0%	100%		10%	90%	
	No	2	178	10	170		
		1,1%	98,9%	5,6%	94,4%		

maternal occupational status and PPD. Moreover, it has been shown that an increase in the number of deliveries caused an increase in PPD prevalence [6,23]. We similarly determined a parallel increase in PPD prevalence to an increase in the number of pregnancies. A history of PPD in the previous pregnancies, having another psychiatric disorder, or antidepressant use during pregnancy is known to increase PPD incidence [23]. However, our study found no link between PPD and having a history of depression or antidepressant use. This suggests that our results stemmed from low prevalence of antidepressant use or PPD history.

IPV at pregnancy is a growing problem and remains a social issue. Our study is the first to investigate the relationship between economic, physical, and sexual IPV during pregnancy and EPDS in Turkey. A prior study has reported that 35.2% of all pregnant subjects were exposed to physical IPV; 18.5% sexual IPV; and some 65% psychological IPV [13]. Another study reported that 8.8% of the participants were subjected to sexual

IPV and 12.2% to physical IPV [14]. A study from Turkey reported that pregnant women were most commonly subjected to physical (11.5%), verbal (31.4%), emotional (22.9%), sexual (12.7%), and economic (9.3%) IPV [24]. However, this study did not clarify the relationship between IPV types and EPDS scores. We demonstrated a prevalence of 6.4% for physical IPV; 11.8% for psychological IPV; 6.8 for economic IPV, and 0.9% for sexual IPV. Our findings were somewhat lower than previously reported.

Domestic studies from Turkey have indicated that the percentage of pregnant subjects exposed to spouse's physical IPV ranged between 8.1% and 36.4% [24]. These domestic studies have been conducted in a cross-sectional manner in different regions of the country. We performed our study in the Central Anatolian Region of Turkey. Its results indicate that IPV is still a social problem. The prevalence of psychological IPV has been reported by domestic studies between 26.7% and 53.6% [25]. Our study showed a psychological IPV rate of 11.8% during pregnancy. Studies on economic IPV at pregnancy revealed the exposure rates of 28.2%, 29.3%, and 9.3%, respectively [24]. Our study, on the other hand, revealed an economic IPV rate of 6.8%. Studies on sexual IPV at pregnancy revealed the exposure rates of 5.4%, 36.4%, and 10% [24]. We determined a sexual IPV rate of 0.9%. Furthermore, we revealed that physical and psychological IPV had significant effects on EPDS. A former study reported that smoking during pregnancy and educational level were the risk factors for physical violence during pregnancy while unplanned pregnancy, living in rural area, and the spouse's low educational level were determined as the risk factors for emotional IPV. Moreover, smoking is also regarded as a factor for sexual IPV at pregnancy [25]. In our study, we found no effect of smoking on exposure to various IPV types. Nevertheless, we revealed the significant impact of educational level on physical IPV (p=0.038, p<0.05).

Our study had some limitations. We assessed the EPDS scores of our participants only once. Different studies may rate EPDS scores in the same individuals at second, fourth, and sixth months. We also assessed the effect of different IPV types on EPDS during pregnancy. EPDS may be re-assessed at postpartum second, fourth, and sixth months in the same individuals to clearly determine the relationship between IPV types and EPDS. In conclusion, postpartum depression is a highly prevalent disorder that adversely affects the quality of life of mother, infant and the whole family. Mothers at the postpartum period should be more closely followed and carefully questioned about PPD. Additionally, assessments about IPV during pregnancy may help us both to make an early diagnosis and treatment and provide a healthier and safer environment for both mother and infant.

**Scientific Responsibility Statement**

*The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.*

**Animal and human rights statement**

*All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No ani-*

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### Conflict of interest

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